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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,209	04/23/2001	Katsunori Tanaka	Q63408	3746

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SUGHRUE, MION, ZINN, MACPEAK & SEAS
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EXAMINER
NGUYEN, TRAN N

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 05/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/839,209	TANAKA ET AL.	
	Examiner	Art Unit	
	Tran N. Nguyen	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. **Claims 1-8** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "Ti" (titanium) and "B" (boron) should be spelled out completely once for clarification.

In claim 4, "said permanent magnets (plural form) are supported....holding members surrounding the magnet (singular form)" is indefinite because it is unclear that the holding members support all the permanent magnets or just one single magnet? In light of the spec, it is understood as holding members support the plural magnets.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1 and 6-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukai et al (US 5903083) in view of Umeda et al (US 6291918) and Iwata (US 5800728).

Mukai discloses an alternator comprising a stator (2), and a rotor (1) having two claw-pole cores (14, 16) with respective claw poles (22, 28). Mukai particularly discloses a plurality of

restricting means (32) made of either stainless steel or aluminum, which are known for corrosion resistive characteristics, disposed on their outer circumference of the pole cores to restrain the claw poles and the magnet from being displacement. Mukai substantially discloses the claimed invention, except for the following:

(a) the permanent magnet (PM) is of samarium-iron alloy containing titanium (Ti) and Boron (B);

(b) the stator is a three-phase alternating current windings.

Regarding limitations of subsection 3a, Iwata discloses a PM is of samarium-iron alloy containing titanium (Ti) and Boron (B). Iwata discloses that the composition of the permanent magnet of samarium-iron alloy containing titanium and boron would have superior magnetic characteristics.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the Mukai's rotor by selecting PM material composition of samarium-iron alloy containing titanium and boron, as taught by Iwata. Doing so would enable to improve efficiency of the alternator due to rotor having magnets with superior magnetic characteristics. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin, 125 USPQ 416.*

Regarding limitations of subsection (3b), Umeda teaches an alternator comprising a stator having a three-phase alternating current windings. Alternators having three-phase winding are well known in the art.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to embodying the Mukai's stator to be three-phase winding, as taught by Umeda. Doing so would require only routine skills in the art since Alternators having three-phase winding are well known in the art.

4. **Claims 2-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukai, Umeda and Iwata , as applied in the rejection against the base claim, and further in view of Nagayama et al (US 5779453).

The combination of **Mukai, Umeda and Iwata** refs substantially discloses the claimed invention, except for the added limitations of the following:

(a) the PMs are magnet powder bonded by resin, as in claim 2;

(b) the PMs are bonded magnets of Sm sub. 8.2, Fe sub. 75.6, Ti sub. 2.3, Boron sub. 0.9 and N sub. 13, as in claim 3.

Regarding limitations in subsection (4a), Nagayama, teaches a rotor magnets (5a, 5b) that are magnet powder bonded by resin. Nagayama teaches that the magnet powder bonded by resin would prevent eddy current being generated in the PM resulting in reducing heat in the rotor.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor of the alternator by selecting PM of magnet powder bonded by resin, as taught by Nagayama. Doing so would prevent eddy current being generated in the PM resulting in reducing heat in the rotor. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin, 125 USPQ 416.*

Regarding limitations in subsection (4b), Iwata discloses a samarium-iron alloy containing titanium (Ti) and Boron (B) as well as Nitrogen (N). Iwata does not disclose the specific composition formula as recited in claim 3. However, those skilled in the art would understand that Iwata generally discloses the PM composition for producing high magnetic characteristics. It would have been obvious to an artisan to apply the Iwata's teaching of magnet material composed of Sm Fe Ti B N with specific material composition as in claim 3.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to select bonded PMs of material composition. Sm sub. 8.2, Fe sub. 75.6, Ti sub. 2.3, Boron sub. 0.9 and N sub. 13. Doing so would require only routine skill in the art to select a suitable material for the intended use of the component. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin, 125 USPQ 416.*

5. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Mukai, Umeda and Iwata , as applied in the rejection against the base claim, and further in view of Harris et al (US 5793143).

The combination of **Mukai, Umeda and Iwata** refs substantially discloses the claimed invention, except for the added limitations of the PMs are supported by corrision-resitive holding members surrounding the PMs.

Harris, however, teaches a rotor having a plurality of PMs (38), each of which is surrounded by a corrision-resitive holding member (36) for securely holding the PMs in place and protecting the PMs against corrosion.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by embodying the PMs with corrision-resitive holding member, as taught by Harris. Doing so would provide means for securely holding the PMs in place and protecting the PMs against corrosion.

6. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Mukai, Umeda and Iwata , as applied in the rejection against the base claim, and further in view of Kuriyama (US 5424591).

The combination of **Mukai, Umeda and Iwata** refs substantially discloses the claimed invention, except for the added limitations of at least one portion of the side opposing to the claw pole side surfaces of the magnets is resin coated.

Kuriyama, however, teaching the magnetic core and the PM are coated with liquid-crystal plastics, or thermoplastic resin for preventing corrosion of the component and to prevent relative movements of the respective components. Those skilled in the art would understand that the important teaching of the Kuriyam ref is to coat the PMs and their accommodating component with liquid-crystal plastics, or thermoplastic resin to prevent corrosion and relative movement.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by providing a resin coating to the PMs and their accommodating component, as taught by Kuriyama. Doing so would prevent corrosion as well as relative movement of the components.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N Nguyen whose telephone number is (703) 308-1639. The examiner can normally be reached on M-F 6:00AM-2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703)-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)-395-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-1782.

TRAN NGUYEN
PRIMARY PATENT EXAMINER
TC-2800